

REMARKS

The present Response does not amend, add, or cancel any claims. Accordingly, claims 1-10 remain pending for examination. Claims 1 and 10 are independent.

In the Office Action of November 9, 2009, claims 1-3, 5 and 10 were rejected under 35 USC §102(e) as being anticipated by U.S. Patent No. 7,264,262 issued to Ishizuka et al. ("Ishizuka"). Applicants note that this patent number appears to have been written in error and that the correct patent number should be 7,274,363. Claim 4 was rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 7,274,363 issued to Ishizuka et al. ("Ishizuka"). Claims 6 and 7 were rejected under 35 USC §103(a) as being unpatentable over Ishizuka in view of U.S. Patent No. 6,518,962 issued to Kimura et al. ("Kimura"). Claims 8 and 9 were rejected under 35 USC §103(a) as being unpatentable over Ishizuka in view of U.S. Patent No. 6,414,443 issued to Tsuruoka et al. ("Tsuruoka"). These rejections are respectfully traversed.

Claims 1-3, 5, and 10 were rejected under 35 USC section 102B as being anticipated by Ishizuka. Regarding this rejection, the Office Action alleges that Ishizuka discloses a display apparatus that includes a pixel array including a plurality of pixels that each includes a light emitting unit, a drive element, and a switching element. The display apparatus is further indicated as disclosing a data signal drive circuit for receiving the image data for each frame period and outputting the image signal to the pixel array, a scanning signal drive circuit for outputting a scanning signal to the pixel array, and a current source for outputting the current supplied to the light emitting unit. Additionally, the Office Action indicates that the current source

modulates the value or the amount of current being output. Applicants respectfully disagree.

Independent claim 1 defines a display apparatus that comprises:

- a pixel array including a plurality of pixels, each pixel including:
 - a light emitting unit,
 - a drive element for controlling supply of a current to said light emitting unit, and
 - a switching element for controlling said drive element according to an image signal;
 - a data signal drive circuit for receiving image data for each frame period and outputting said image signal to said pixel array based on said image data, said each frame period being provided for displaying one screen of said image data;
 - a scanning signal drive circuit for outputting a scanning signal to said pixel array, said scanning signal being for controlling a timing at which said switching element receives said image signal; and
 - a current source for, through said drive element, outputting said current supplied to said light emitting unit;
- wherein said current source modulates the value or the amount of said current within said each frame period, said current being output from said current source.

The display apparatus of independent claim 1 includes a pixel array, a data signal drive circuit, a scanning signal drive circuit, and a current source. The pixel array includes a plurality of pixels that each includes a light emitting unit, a drive element for controlling the current supplied to the light emitting unit, and a switching element to control the drive element according to an image signal. The data signal drive circuit receives image data for each frame period and outputs the image signal to the pixel array based on the image data, with each frame period being provided for displaying one screen of the image data. The scanning signal drive circuit outputs a scanning signal to the pixel array for controlling the timing at which the switching element receives the image signal. The current source outputs the current

supplied to the light emitting unit through the drive element. According to independent claim one, the current source modulates the value or the amount of current within each frame period and also outputs the current being supplied.

As discussed in the Specification, pulse width modulation is applied to an input signal for each pixel in order to achieve, for example, a gray scale display. The display synchronous cathode potential control circuit can reduce the cathode side potential of the organic EL elements, thereby increasing the voltage between both electrodes according to the display phase signal. This allows only like those pixels with high grayscale values to emit light at high luminance levels, thereby enhancing the peak luminance and visual impact of the display screen. See paragraphs [0085] and [0086] of the Published Application.

The Office Action alleges that Ishizuka discloses all of the features recited in independent claim 1. This does not appear to be the case. Ishizuka discloses a display panel driving device wherein the value of the light emission drive current flowing to each pixel element emits light in succession is measured. The luminance is subsequently corrected for each input pixel data based on the light-emission drive current values. According to Ishizuka, current from the power supply circuit is supplied via a switch when the switch is turned on or via resistor when the switch is turned off. See column 18, lines 34 to 45. A controller is used to control the on-off state of the switch, and the current measuring circuit outputs a voltage that corresponds to the value of the current flowing through the resistor. The controller further executes a leak current canceling routine that measures the current flowing in the display panel when the light-emission drive is ceased in all of the pixel positions. The timing for executing these routines is provided when the power supply of the

display apparatus is turned off, when the image data is not being input, or during intervals between one subfield and the next subfield.

As can be appreciated, Ishizuka controls the power supply based on the result of measuring current when the light-emission drive ceases to supply power to all of the pixel portions. See column 19, lines 1 to 15, and figure 17. Contrary to the assertions made in the Office Action, Ishizuka is completely silent on modulating the amount of current according to the light-emission or frame.. Consequently, there can be no disclosure or suggestion for features recited an independent claim 1 such as:

wherein said current source modulates the value or the amount of said current within said each frame period, said current being output from said current source.

It is therefore respectfully submitted that independent claim 1 is allowable over the art of record.

Claims 1 to 9 depend from independent claim 1, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 1. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

Independent claim 10 defines a method for displaying an image based on image data by using a pixel array that includes a plurality of pixels. Each of the pixels includes a light emitting unit, a drive element for controlling the supply of current to the light emitting unit, and a switching element for controlling the drive element according to an image signal. The method comprises the steps of:

outputting said current from a current source to said light emitting unit through said drive element;

receiving said image data for each frame period and outputting said image signal from a data signal drive circuit to said pixel array

based on said image data, said each frame period being provided for displaying one screen of said image data;

outputting a scanning signal from a scanning signal drive circuit to said pixel array, said scanning signal being for controlling a timing at which said switching element receives said image signal; and

modulating the value or the amount of said current within said each frame period, said current being output from said current source.

The method of independent claim 10 recites various steps that correspond somewhat to the features recited in independent claim 1. In particular, the method of independent claim 10 requires modulation of the value or amount of current within each frame period, with the current being output from the current source. As previously discussed, such features are not shown or suggested by the art of record.

It is therefore respectfully submitted that independent claim 10 is allowable over the art of record.


For the reasons stated above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a Notice of Allowance is believed in order, and courteously solicited.

If the Examiner believes that there are any matters which can be resolved by way of either a personal or telephone interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

AUTHORIZATION

Applicants request any shortage or excess in fees in connection with the filing of this paper, including extension of time fees, and for which no other form of payment is offered, be charged or credited to Deposit Account No. 01-2135 (Case: 501.43143X00).

Respectfully submitted,
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